

A Quick-Study® Program

Book

8

TEST READY®

SCIENCE

- **REVIEWS**
Key Science Concepts
- **IMPROVES**
Science Assessment Scores
- **DEVELOPS**
Test-Taking Skills

Name: _____



CURRICULUM ASSOCIATES®, Inc.

For the Student

TEST READY® Science is a review program that provides practice in test-taking skills. The program can be completed in twenty-two days or fewer. Your teacher will provide you with directions about how to do the lessons and how to record the answers. Your teacher will also tell you when to begin work on each lesson part and when to stop.

It is important that you read and follow all directions. When the directions tell you to STOP, go no further. Wait for your teacher to tell you what to do. While you work on the **TEST READY** lessons, you will come across **Testing Tips**. Read these helpful tips carefully. They can make you a better test taker.

When You Use This Book

- Be sure you know how much time you have to complete each lesson part.
- Read each direction carefully.
- Understand what you are expected to do before you try to complete an item.
- Read all phrases, sentences, or passages in the item carefully before choosing an answer.
- Check your answer to be sure it makes sense.
- Make sure you fill in the correct letter choices on the answer form.
- If you have time after you complete your work, go back and check your answers.

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15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Lesson 6



Testing Tip Ask yourself whether the numbers in your answer seem sensible. If your answer seems larger or smaller than your estimate, try the problem again.

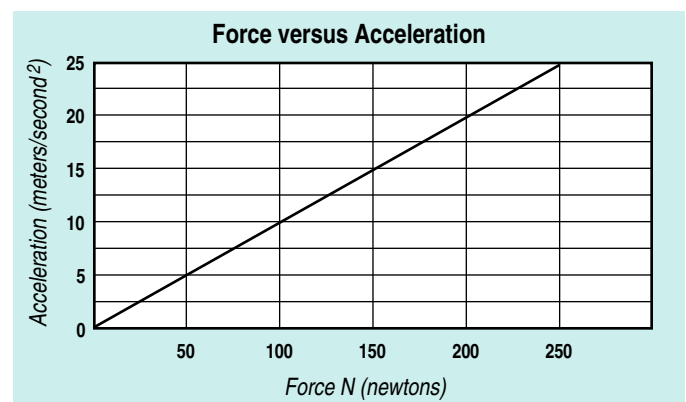
Part One

Using Math in Science

For numbers 1–8, read the question and choose the best answer.

- About 33% of the solar energy that reaches the atmosphere is reflected back into space. About 20% is absorbed by the air. What percentage reaches the earth's surface?**
(A) 47%
(B) 33%
(C) 100%
(D) 53%
- In the lower atmosphere, the dew point decreases about 0.2°C for each 100m increase in altitude. If the dew point is 12°C at sea level, what will it be at an altitude of 600m?**
(A) 11.4°C
(B) 12.6°C
(C) 13.2°C
(D) 10.8°C
- Acid rain is formed when sulfur trioxide combines with water. Which of these is the balanced equation showing how acid rain forms?**
(A) $\text{SO}_3 + \text{H}_2\text{O} = \text{H}_2\text{SO}_4$
(B) $3\text{SO} + \text{H}_2\text{O} = \text{H}_2\text{SO}_3$
(C) $\text{SO}_3 + \text{H}_2\text{O} = 2\text{HSO}_2$
(D) $3\text{SO}_3 + 3\text{H}_2\text{O} = \text{H}_3\text{SO}_{10}$
- The population of a community begins with 100 individuals. Each pair of individuals from each previous generation has only two offspring. What will be the total number of offspring produced in the fourth generation?**
(A) 50 offspring
(B) 100 offspring
(C) 400 offspring
(D) 1,600 offspring

- Radium has a half-life of 1,622 years. During decay, radium converts to lead. After 3,244 years, how much lead is there in a block that began as 100 grams of radium?**
(A) 100 g
(B) 25 g
(C) 10 g
(D) 75 g
- Lucia is planning a model of the solar system. She knows that the sun's diameter is about ten times Jupiter's diameter, and Jupiter's diameter is about ten times Earth's diameter. What is the ratio between the sun's diameter and earth's diameter?**
(A) 1,000:1
(B) 10:1
(C) 100:1
(D) 20:1
- A giant redwood tree stands 80 meters tall and is estimated to be about 2,000 years old. On the average, what was the rate of growth of the tree?**
(A) 25 meters/year
(B) .4 meters/year
(C) .04 meters/year
(D) .25 meters/year
- Which statement is supported by this graph?**



- For each additional 50 N, acceleration increases 5 ms^2 .
- Accelerating an object by 10 ms^2 creates a force of 100 N.
- The force N increases by 50 for each 5% increase in mass.
- The force N increases as the acceleration decreases.

This chart gives the distances to some bright stars. Use the chart to answer questions 9 and 10.

Star	Proper Name	Distance (in light-years)
α Cma	Sirius	8.7
α Cen	Rigil Kent	4.3
α Lyr	Vega	26
α Ori	Betelgeuse	650
α Vir	Spica	270
β Ori	Rigel	815

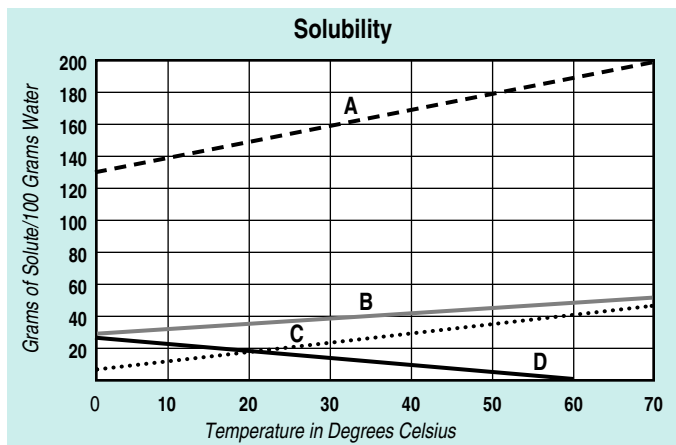
9. Compared to the nearest star in the chart, how much farther away is the farthest star in the chart?

- Ⓐ 815 light-years
- Ⓑ 810.7 light-years
- Ⓒ 819.3 light-years
- Ⓓ 811.7 light-years

10. A light-year is the distance light will travel in one year at 310,000 km/sec. Which formula would you use to calculate the approximate distance in kilometers to Vega?

- Ⓐ $60 \times 24 \times 310,000 \times 26$
- Ⓑ $60 \times 60 \times 26 \times 310,000$
- Ⓒ $60 \times 60 \times 24 \times 365 \times 310,000 \times 26$
- Ⓓ $60 \times 60 \times 24 \times 310,000 \times 26$

This graph shows four solubility curves. Use the graph to answer questions 11 and 12.



11. Which line shows matter that decreases its ability to dissolve as temperature increases?

- Ⓐ A
- Ⓑ B
- Ⓒ C
- Ⓓ D

12. How much more of A dissolves in 100 g of water at 70°C than at 30°C?

- Ⓐ 30 g
- Ⓑ 40 g
- Ⓒ 70 g
- Ⓓ 180 g

Part Two

Solving a Problem

Imagine you are a biologist studying an area that is 5 km \times 2 km. You have arrived at the following counts for the populations you're studying: 120 rabbits, 240 squirrels, 10 deer, and 25 blue jays. What is the population and the population density of each type of animal?

Before the next count, 20 squirrels are killed by owls, 10 die of disease, and 40 are born. What is the new population and population density for squirrels? Without changing the number of deer, how could the population density of deer be lowered?



STOP.....

TEACHER GUIDE

Book

8

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For the Teacher

What is *TEST READY® Science*?

TEST READY Science is an eight-level review program that provides practice in test-taking skills. The program promotes the learning of science by assessing knowledge of key science concepts that are commonly taught and evaluated in grades 1 through 8.

Each *TEST READY Science* student level is a 32-page book of ten lessons, a Practice Test, and an Answer Form. Each *TEST READY Science Teacher Guide* contains all the information needed to implement the program, an optional Pretest, and answers to the questions in the student book.

TEST READY Science, Book 8, reviews science skills and concepts usually introduced and developed in grade 8.

Student Book

- The lessons focus on earth and space science, life science, physical science, the human body, experiments and observations, mathematics in science, content reading, applying science skills, and interpreting pictures, charts, graphs, and diagrams. Each lesson includes twelve selected-response questions and one extended-response activity. Extended-response activities require students to use scientific thinking to organize, write, draw, and/or measure.
- The Practice Test assesses the same range of concepts and skills as the lessons. It allows students to experience the test-taking process.
- The Answer Form provides students with the opportunity to record answers on a form similar to those used with most standardized assessments.

Teacher Guide

- An optional Pretest mirrors the Practice Test, assessing the same range of concepts and skills. The Pretest provides information about a student's science knowledge before he or she begins the program.
- A Scope and Sequence chart of question types provides an outline of the science areas covered in the student book.

How does *TEST READY® Science, Book 8*, correlate to major standardized assessments and proficiency assessments?

Major standardized assessments vary in content, format, and level of difficulty. *TEST READY Science* provides practice with a variety of commonly-used assessment formats and a wide range of grade-appropriate science concepts and skills that major standardized assessments and proficiency assessments evaluate.

How does *TEST READY® Science, Book 8*, correlate to the standard science curriculum?

The content of *TEST READY Science, Book 8*, supports the National Science Education Standards, which are organized into the following eight categories: unifying concepts and processes, science as inquiry, physical science, life science, earth and space science, science and technology, science in personal and social perspectives, and history and nature of science. The science topics in *TEST READY Science, Book 8*, reflect the major content and skill areas listed in the Standards for grade 8 science curriculum.

Who should use *TEST READY® Science, Book 8*?

TEST READY Science, Book 8, is appropriate for use

- with eighth-grade students preparing for standardized assessments and proficiency assessments.
- with ninth-grade students reviewing science content at the beginning of the school year in order to pinpoint mastered and unmastered concepts and skills.
- as a summer-school course of study for students who need further work with eighth-grade science content.

Scope and Sequence—TEST READY® Science, Book 8

The boldfaced number indicates the lesson number; OP = Optional Pretest and PT = Practice Test.
The numbers in parentheses indicate the question number.

Skill	Lesson and Question Number
Earth and Space Science	Focus of Lesson 1
earth in space	7 (3, 4); OP & PT (35, 36)
earth's surface and interior	1 (3, 7, 9); 7 (5, 6); OP & PT (14)
weather and climate	1 (2, 9, 12); 6 (2); 7 (1); OP & PT (10, 24)
geology	1 (1, 4, 10); 8 (2); 9 (7, 9, 10, 11, 12); OP & PT (9)
weathering and erosion	9 (8)
solar system	1 (5, 6, 8, 11); 6 (1, 6); 8 (1, 5, 6, 7, 8); OP & PT (15, 21, 23, 34)
science and other terms	7 (2, 9)
Life Science	Focus of Lesson 2
structure and function of plants and animals	2 (2, 4, 7, 9, 11); 7 (7, 8, 12); 9 (5); OP & PT (5, 7)
classification	2 (1, 3); 7 (10); 8 (10); 9 (4)
adaptation	2 (5, 6, 8); 8 (3)
reproduction	6 (4)
ecology and ecosystems	2 (10, 12); 6 (3, 7); 7 (8, 9, 10, 11); 8 (4); 9 (1, 2, 3); 10 (12); OP & PT (2)
Physical Science	Focus of Lesson 3
matter	3 (2, 4, 5, 9, 12); 6 (5); 10 (11, 12); OP & PT (1, 3, 31, 32)
physical or chemical change	3 (1, 3, 10, 11); 10 (3, 4, 5); OP & PT (12)
electricity and magnetism	3 (8); 8 (11); OP & PT (6)
light	OP & PT (37, 38)
sound	OP & PT (8, 13)
energy	3 (6); OP & PT (16, 17, 29, 30)
force and motion	3 (7); 6 (8); 8 (10); OP & PT (11, 19, 20)
The Human Body	Focus of Lesson 4
organs	4 (9)
nutrition	4 (5); OP & PT (4)
systems	4 (2, 6, 7, 10); 10 (7)
cells and genetics	4 (1, 3, 4, 7, 8, 11, 12); OP & PT (22)
Experiments and Observations	Focus of Lesson 5
science processes	5 (4, 6, 12); 8 (8)
interpreting data	5 (7, 8, 9); 6 (12); 9 (6); 10 (1, 8, 9, 10); OP & PT (18, 25, 26, 28)
formulating hypotheses	OP & PT (39)
predicting	5 (1, 2, 5); 8 (9)
controlling variables	5 (3); 8 (12); OP & PT (40)
communicating data	5 (10, 11); 6 (10, 11); 8 (7); 10 (2, 6); OP & PT (27, 29, 30, 33)
Using Math and Science	Cross Referenced in all Lessons, OP, and PT
computation	6 (2, 3, 4, 5, 9)
measurement	3 (2, 3); 6 (8, 11, 12); 7 (1); 10 (3, 4, 5, 8); OP & PT (21)
percent	6 (1); 12 (26)
rate, ratio, and proportion	6 (6, 7, 8, 10); 9 (5); OP & PT (8, 1)

Lesson 4 Part Two page 8

Answers will vary. Sample answer:

The human body is made up of several major systems that work together. The circulatory system regulates the circulation of blood through the body; the main organ is the heart. The heart pumps with the right force to maintain circulation of blood at the right pressure. The respiratory system, with the lungs as its main organ, brings air into the body so that oxygen can be added to the blood and carbon dioxide removed. Without a balance in this process, the blood would become toxic with carbon dioxide or there would be no oxygen for cell building. The digestive system, starting at the mouth and continuing through the stomach and intestines, provides the body with food for energy and healing. Without this system, the body would have no materials to work with to make new cells. The excretory system removes wastes from the body, preventing a dangerous build-up of waste materials. The nervous system sends signals to the brain. It helps maintain equilibrium by providing the sensations of hunger and thirst, or warning of danger, such as heat. The skeletal and muscular systems give support and allow movement. They also help protect the body and its functioning. For example, the rib cage protects vital organs, and the spine allows nerve signals to reach the brain. The endocrine system produces hormones that help regulate the body, so that it grows and develops at the right time. The reproductive system helps maintain life by allowing for the creation of a new life.

Lesson 5 Part Two page 10

Answers will vary. Sample answer:

Is rusting really a chemical change that uses up oxygen? I would try to prove this with a simple experiment. I would gather some masking tape, steel wool, a pencil, string, a water glass, and a pie plate filled with water. To make the steel wool rust, I would wet it. Then I would attach it to the pencil with the string. I would stand the pencil inside the inverted glass with the steel wool at the top of the glass. I would place the inverted glass in the pie pan of water, making sure the steel wool was out of the water. Then I would mark the level of water with the tape. I would measure the distance the water rises over time to see if it equals about one fifth of the original amount of air in the glass. That would suggest that the oxygen has been used up in a chemical reaction.

Lesson 6 Part Two page 12

Wording of answer will vary. Sample answer:

My area, ten square kilometers (10 km^2), has these populations: rabbits, 120; squirrels, 240; deer, 10; bluejays, 25. The population densities are 12 rabbits per square kilometer; 24 squirrels per square kilometer; 1 deer per square kilometer, and 2.5 bluejays per square kilometer. The new population of squirrels is 250, or 25 per square kilometer. The population density of deer could be lowered by increasing the area in which the 10 deer live.

Lesson 7 Part Two page 14

Answers will vary. Sample answer:

Newton's law states that if an object pushes another object, the second object pushes back with the same force. For example, if you fill a balloon with air and let go, the air pushes out with a force and the balloon moves in the opposite direction with the same force. People rowing boats use Newton's law. As the flat side of oars push against the water, the water pushes back on the oars, and the boat moves forward. An octopus moves by pushing out water backward to propel itself forward.